

25ADL-1420  
26 JUNE 2026

# Arboricultural Impact Assessment

LeFevre Substation – Pelican Point Substation

AUSTRALIAN NAVAL INFRASTRUCTURE (ANI)



# Arboricultural Impact Assessment

26 June 2026

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|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------|
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| V3       | 11/05/2026 | J. Kenworthy | M. Rolfe | Updated plans        |
| V4       | 16/06/2026 | J. Kenworthy | M. Rolfe | Review amendments    |

We acknowledge the Kaurna People as the Traditional Custodians of the land on which we work and pay respect to their Elders past, present and emerging.

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## Abbreviations

| Abbreviation | Meaning                                      |
|--------------|----------------------------------------------|
| AIA          | Arboricultural Impact Assessment             |
| ANI          | Australian Naval Infrastructure              |
| AS           | Australian Standard                          |
| AQF          | Australian Qualification Framework           |
| CAD          | Computer Aided Drawing                       |
| cm           | Centimetres                                  |
| DSH          | Diameter at Standard Height                  |
| DRB          | Diameter at Root Buttress                    |
| IACA         | Institute of Australian Consulting Arborists |
| m            | Metres                                       |
| NRZ          | Notional Root Zone                           |
| PA           | Project Arborist                             |
| SRZ          | Structural Root Zone                         |
| TPP          | Tree Protection Plan                         |
| TPS          | Tree Protection Specifications               |
| TPZ          | Tree Protection Zone                         |
| VTA          | Visual Tree Assessment                       |

## Executive Summary

A total of 40 trees were assessed within the Pelican Point substation and LeFevre Substation. The impact on trees of the proposed 275kV cable line connecting the two substations was also assessed.

The assessed tree population consists of *Melaleuca halmaturorum* – South Australian Swamp Paperbark, *Allocasuarina verticillata* – Drooping She-Oak and other indigenous/introduced native species.

A total of 33 trees have trunk circumferences that exceed 1m (when measured at 1m above natural ground level). These are classified as Regulated Trees under the *Planning Development and Infrastructure Act 2016*.

An additional 6 trees have trunk circumferences that exceed 2m (when measured at 1m above natural ground level). These are classified as Significant Trees under the *Planning Development and Infrastructure Act 2016*.

One tree (Tree 42) has a trunk circumference <1m and is not controlled under the *Planning Development and Infrastructure Act 2016*. This tree was considered for comprehensiveness due to its proximity to the proposed 275kV line footprint.

A total of 34 trees are subject to impacts from the proposed work (as per Section 3). The impact on these trees is “major” (>20% NRZ encroachment and/or SRZ impact). The retention of these trees is not compatible with the proposed work. The remaining 6 trees are not subject to any impact from the proposed work.

Trees 25, 42, 43, 44, 45 and 46 (6 trees) are recommended for retention. These trees are not subject to impacts from the proposed work. A tree protection plan and tree protection specifications have been included to outline protection methods for these trees.

Trees 26-41 (16 trees) and 47-64 (18 trees) are recommended for removal. These trees do not satisfy the tests in PO 1.1 and PO 1.2 of the Regulated and Significant Tree Overlay in the Planning & Design Code (see Appendix B). This means that they are not Regulated or Significant Trees worthy of retention and are therefore suitable for removal. Approval is required to remove these trees.

These trees are subject to impacts from the proposed work and/or have short useful life expectancy and moderate/low ecological value. Approval to remove these trees is required.

# 1. Introduction

URPS is engaged by Australian Naval Infrastructure (ANI) to prepare an Arboricultural Impact Assessment (AIA) for trees along the proposed 275Kv cable route and on the site of two associated substations.

This AIA has been prepared in accordance with *AS 4970–2025 Protection of Trees on Development Sites* and the *Planning, Development and Infrastructure Act 2016*.

## 1.1 Objectives

The purpose of this arboricultural impact assessment is to:

- Undertake a Visual Tree Assessment (VTA) of trees associated with the proposed development to:
  - Determine tree health, structure, dimensions, age, useful life expectancy, landscape significance and retention values.
- Determine legislative status of subject trees, in accordance with the *Planning, Development and Infrastructure Act 2016*.
- Define the Notional Root Zones (NRZ) and Structural Root Zone (SRZ) of each tree.
- Assess likely impacts on all trees and whether trees will remain viable beyond completion of works.
- Detail design modifications that have been considered.
- Provide justification for trees requiring removal; and,
- Specify any methods that should be implemented to minimise or avoid the impacts on trees that are to be retained, including:
  - Tree management work i.e., pruning (in accordance with *AS4373 Pruning of amenity trees*).
  - Tree protection devices i.e., protective fencing, ground protection.
  - Project Arborist supervision and monitoring.
- Provide a mapped Tree Protection Plan (TPP) and detailed Tree Protection Specifications (TPS).

## 1.2 Assessment Methodology

This work has been undertaken using a consistent framework for evaluating tree condition, significance, and potential development impacts. This approach ensures that all trees are assessed in accordance with industry-recognised criteria. This allows for transparent and evidence-based recommendations. For more information please see: <https://urps.com.au/services/arboriculture/assessment-methodology/>

## 1.3 Provided Documentation

URPS has utilised the following plans for this impact assessment:

- Electra Net. 02.2026. *Route Plans LeFevre / LeFevre East – Pelican Point*. Revision A. DWG Ref 3 02259/400-005.

The concept plans utilised are preliminary and are subject to change. The AIA will require updating once the final detailed plans are available.

## 1.4 Site Observations

A Level 2 assessment of 40 trees was undertaken by Senior Consultant & AQF Level 5 Arborist Jemima Kenworthy (CV attached as Appendix A) on the morning of 19 March 2026 and 1 April 2026. The assessed area consists of two components:

1. Pelican Point Power Station (off Pelican Point Road) (Figure 1)
2. LeFevre Substation (off Mersey Road North) (Figure 2)

The weather at the time of assessment was warm with average temperatures of 24 - 28°C. Winds were relatively calm during the assessment period. All trees were accessible for the purposes of the assessment. Estimated measurements have been taken where vegetation density limited access.



**Figure 1: Pelican Point Substation**

The Pelican Point Substation assessment area is relatively flat across the site with minor land undulations from previous earthworks. The assessed trees are situated in dense scrub vegetation south of the Substation. The vegetation becomes sparse closer to Pelican Point Road.

The vegetative character of the area consists of dense coastal wetland vegetation (mostly indigenous/introduced native) in an industrial setting. The site is not connected to a wildlife corridor of remnant native vegetation.



**Figure 2: LeFevre Substation**

The LeFevre Substation assessment area is relatively flat across the site with a minor fall to the east. The assessed trees are situated in sparse low-lying vegetation to the east of the Substation and along the dirt road to the south.

The vegetative character of the area consists of dense coastal wetland vegetation (mostly indigenous/introduced native) in an industrial setting. The site is not connected to a wildlife corridor of remnant native vegetation.

The proposed 275kV underground line route was also assessed. There are two Regulated Trees situated north of Pelican Point Road within the Pelican Point substation area. These trees have been included within this assessment (Tree 43 and Tree 44).

There were no other Regulated or Significant Trees along the alignment of the proposed 275kV cable.

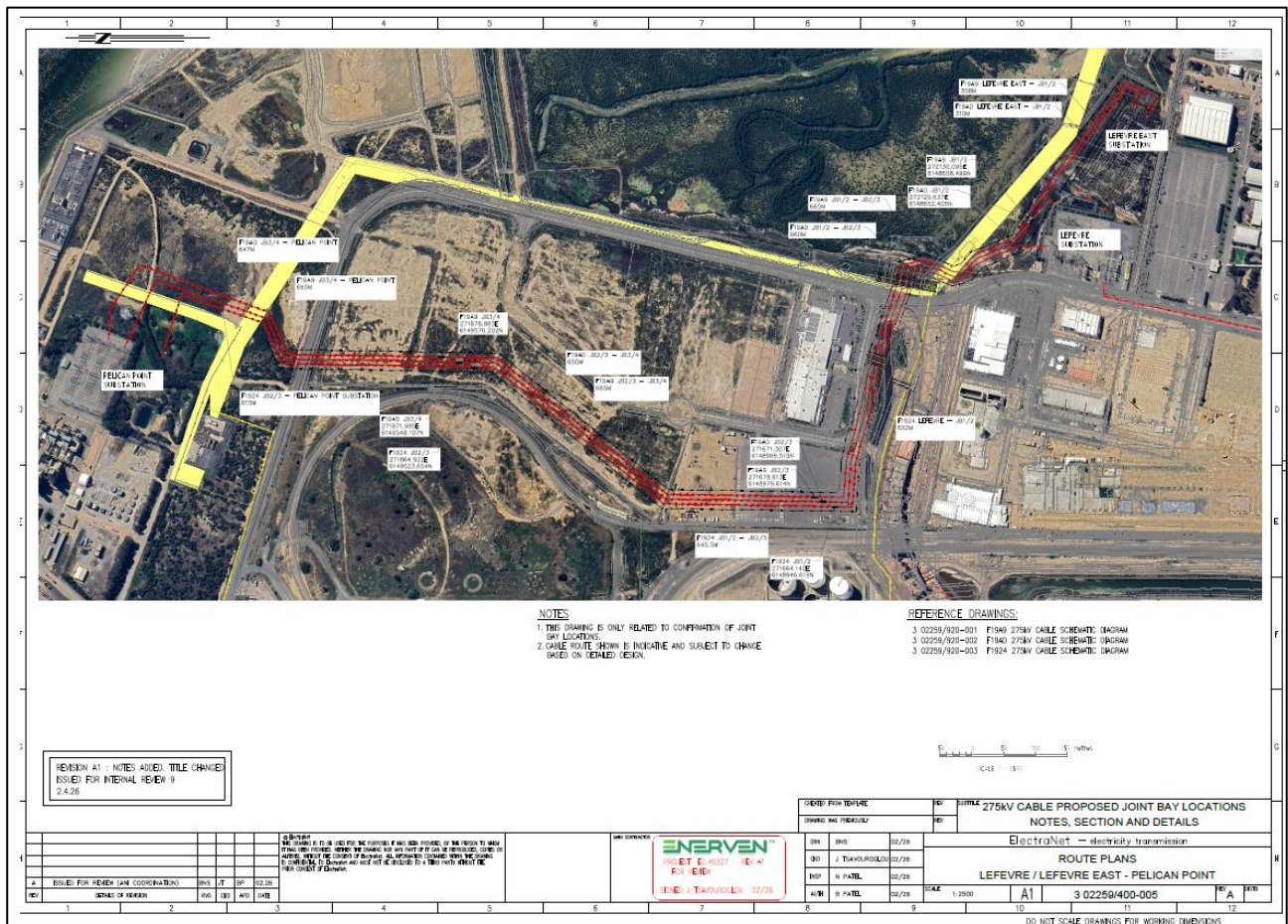


Figure 3: Proposed 275kV Cable Layout shown in red (Electra Net 2026)

## 2. Tree Data

A total of 40 trees were assessed as part of this impact assessment. An overview of the tree data is provided in the table below. Tree locations are illustrated in Figure 4 and Figure 5. Detailed Tree Assessment Profiles can be found in Appendix B.

| Tree | Botanical Name                    | Common Name                      | Age    | Health | Structure | ULE    | Landscape Significance | Retention Value | Circumference sum (cm) | Legislative Control             | DSH (m) | DRB (m) | NRZ Radius (m) | NRZ Area (m²) | SRZ Radius (m) |
|------|-----------------------------------|----------------------------------|--------|--------|-----------|--------|------------------------|-----------------|------------------------|---------------------------------|---------|---------|----------------|---------------|----------------|
| 25   | <i>Eucalyptus occidentalis</i>    | Flat Topped Yate                 | Mature | Good   | Fair      | Long   | Low – LS               | Medium          | 112cm                  | PDI Act 2016 (Regulated Tree)   | 0.35    | 0.50    | 4.20           | 55.42         | 2.47           |
| 26   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | Mature | Good   | Good      | Medium | Low – LS               | Low             | 150cm                  | PDI Act 2016 (Regulated Tree)   | 0.35    | 0.55    | 4.20           | 55.42         | 2.57           |
| 27   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | Mature | Fair   | Fair      | Medium | Low - LS               | Low             | 170cm                  | PDI Act 2016 (Regulated Tree)   | 0.27    | 0.35    | 3.28           | 33.80         | 2.13           |
| 28   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | Mature | Fair   | Fair      | Medium | Low - LS               | Low             | 171cm                  | PDI Act 2016 (Regulated Tree)   | 0.25    | 0.35    | 3.06           | 29.42         | 2.13           |
| 29   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | Mature | Good   | Fair      | Medium | Low - LS               | Low             | 168cm                  | PDI Act 2016 (Regulated Tree)   | 0.26    | 0.65    | 3.14           | 30.97         | 2.76           |
| 30   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | Mature | Fair   | Fair      | Medium | Low - LS               | Low             | 124cm                  | PDI Act 2016 (Regulated Tree)   | 0.25    | 0.57    | 3.05           | 29.22         | 2.61           |
| 31   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | Mature | Fair   | Fair      | Medium | Low - LS               | Low             | 310cm                  | PDI Act 2016 (Regulated Tree)*  | 0.50    | 0.70    | 6.00           | 113.10        | 2.85           |
| 32   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | Mature | Good   | Poor      | Medium | Low - LS               | Low             | 160cm                  | PDI Act 2016 (Regulated Tree)   | 0.24    | 0.50    | 2.87           | 25.88         | 2.47           |
| 33   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | Mature | Fair   | Poor      | Medium | Low - LS               | Low             | 172cm                  | PDI Act 2016 (Regulated Tree)   | 0.29    | 0.65    | 3.49           | 38.26         | 2.76           |
| 34   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | Mature | Good   | Fair      | Medium | Low – LS               | Low             | 229cm                  | PDI Act 2016 (Regulated Tree)*  | 0.47    | 0.67    | 5.59           | 98.17         | 2.80           |
| 35   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | Mature | Fair   | Poor      | Medium | Low – LS               | Low             | 165cm                  | PDI Act 2016 (Regulated Tree)   | 0.35    | 0.35    | 4.20           | 55.42         | 2.13           |
| 36   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | Mature | Fair   | Poor      | Medium | Low – LS               | Low             | 165cm                  | PDI Act 2016 (Regulated Tree)   | 0.26    | 0.50    | 3.13           | 30.78         | 2.47           |
| 37   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | Mature | Fair   | Good      | Medium | Low – LS               | Low             | 120cm                  | PDI Act 2016 (Regulated Tree)   | 0.25    | 0.34    | 2.99           | 28.09         | 2.10           |
| 38   | <i>Acacia saligna</i>             | Golden Wreath Wattle             | Mature | Good   | Fair      | Medium | Low – LS               | Low             | 173cm                  | PDI Act 2016 (Regulated Tree)   | 0.35    | 0.40    | 4.20           | 55.42         | 2.25           |
| 39   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | Mature | Fair   | Poor      | Medium | Low – LS               | Low             | 159cm                  | PDI Act 2016 (Regulated Tree)   | 0.24    | 0.60    | 2.85           | 25.52         | 2.67           |
| 40   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | Mature | Good   | Fair      | Medium | Low – LS               | Low             | 152cm                  | PDI Act 2016 (Regulated Tree)   | 0.25    | 0.50    | 3.00           | 28.27         | 2.47           |
| 41   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | Mature | Fair   | Poor      | Medium | Low - LS               | Low             | 161cm                  | PDI Act 2016 (Regulated Tree)   | 0.26    | 0.40    | 3.11           | 30.39         | 2.25           |
| 42   | <i>Eucalyptus occidentalis</i>    | Flat Topped Yate                 | Mature | Good   | Fair      | Long   | Low - LS               | Medium          | 95cm                   | Not controlled                  | 0.29    | 0.34    | 3.48           | 38.05         | 2.10           |
| 43   | <i>Eucalyptus occidentalis</i>    | Flat Topped Yate                 | Mature | Good   | Failed    | Long   | Low - LS               | Medium          | 125cm                  | PDI Act 2016 (Significant Tree) | 0.30    | 0.45    | 3.60           | 41.72         | 2.37           |
| 44   | <i>Casuarina cunninghamiana</i>   | River she-oak                    | Mature | Good   | Fair      | Long   | Low - LS               | Medium          | 165cm                  | PDI Act 2016 (Regulated Tree)   | 0.32    | 0.28    | 3.83           | 46.08         | 1.94           |
| 45   | <i>Casuarina cunninghamiana</i>   | River she-oak                    | Mature | Good   | Fair      | Long   | Low – LS               | Medium          | 301cm                  | PDI Act 2016 (Significant Tree) | 0.50    | 0.75    | 6.01           | 113.10        | 2.93           |
| 46   | <i>Casuarina cunninghamiana</i>   | River she-oak                    | Mature | Good   | Fair      | Long   | Low – LS               | Medium          | 255cm                  | PDI Act 2016 (Significant Tree) | 0.46    | 0.55    | 5.46           | 93.66         | 2.57           |
| 47   | <i>Eucalyptus microcarpa</i>      | Grey Box                         | Mature | Fair   | Good      | Long   | Low - LS               | Medium          | 157cm                  | PDI Act 2016 (Regulated Tree)   | 0.34    | 0.44    | 4.06           | 51.78         | 2.34           |
| 48   | <i>Eucalyptus microcarpa</i>      | Grey Box                         | Mature | Fair   | Fair      | Long   | Low - LS               | Medium          | 164cm                  | PDI Act 2016 (Regulated Tree)   | 0.33    | 0.47    | 4.01           | 50.52         | 2.41           |
| 49   | <i>Callitris gracilis</i>         | Slender Cypress-Pine             | Mature | Fair   | Fair      | Long   | Low - LS               | Medium          | 135cm                  | PDI Act 2016 (Regulated Tree)   | 0.26    | 0.31    | 3.12           | 30.58         | 2.02           |
| 50   | <i>Callitris gracilis</i>         | Slender Cypress-Pine             | Mature | Good   | Fair      | Long   | Low - LS               | Medium          | 147cm                  | PDI Act 2016 (Regulated Tree)   | 0.32    | 0.36    | 3.78           | 44.89         | 2.15           |
| 51   | <i>Allocasuarina verticillata</i> | Drooping She-oak                 | Mature | Good   | Fair      | Long   | Low - LS               | Medium          | 255cm                  | PDI Act 2016 (Significant Tree) | 0.53    | 0.65    | 6.33           | 125.88        | 2.76           |
| 52   | <i>Casuarina cunninghamiana</i>   | River she-oak                    | Mature | Good   | Fair      | Long   | Low - LS               | Medium          | 110cm                  | PDI Act 2016 (Regulated Tree)   | 0.27    | 0.33    | 5.59           | 98.17         | 2.08           |
| 53   | <i>Allocasuarina verticillata</i> | Drooping She-oak                 | Mature | Good   | Fair      | Long   | Low - LS               | Medium          | 232cm                  | PDI Act 2016 (Regulated Tree)*  | 0.32    | 0.45    | 3.84           | 46.32         | 2.37           |
| 54   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | Mature | Good   | Fair      | Medium | Low – LS               | Low             | 212cm                  | PDI Act 2016 (Regulated Tree)*  | 0.34    | 0.43    | 4.08           | 52.30         | 2.32           |
| 55   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | Mature | Good   | Fair      | Medium | Low - LS               | Low             | 150cm                  | PDI Act 2016 (Regulated Tree)   | 0.25    | 0.51    | 2.95           | 27.34         | 2.49           |
| 56   | <i>Casuarina cunninghamiana</i>   | River she-oak                    | Mature | Good   | Fair      | Long   | Low - LS               | Medium          | 222cm                  | PDI Act 2016 (Significant Tree) | 0.51    | 0.65    | 6.07           | 115.75        | 2.76           |

| Tree | Botanical Name                  | Common Name   | Age         | Health | Structure | ULE  | Landscape Significance | Retention Value | Circumference sum (cm) | Legislative Control             | DSH (m) | DRB (m) | NRZ Radius (m) | NRZ Area (m²) | SRZ Radius (m) |
|------|---------------------------------|---------------|-------------|--------|-----------|------|------------------------|-----------------|------------------------|---------------------------------|---------|---------|----------------|---------------|----------------|
| 57   | <i>Casuarina cunninghamiana</i> | River she-oak | Semi-mature | Good   | Fair      | Long | Low - LS               | Medium          | 104cm                  | PDI Act 2016 (Regulated Tree)   | 0.19    | 0.25    | 2.25           | 15.90         | 1.85           |
| 58   | <i>Casuarina cunninghamiana</i> | River she-oak | Mature      | Good   | Fair      | Long | Low - LS               | Medium          | 183cm                  | PDI Act 2016 (Regulated Tree)   | 0.30    | 0.35    | 3.58           | 40.26         | 2.13           |
| 59   | <i>Casuarina cunninghamiana</i> | River she-oak | Semi-mature | Good   | Fair      | Long | Low - LS               | Medium          | 140cm                  | PDI Act 2016 (Regulated Tree)   | 0.22    | 0.40    | 2.69           | 22.73         | 2.25           |
| 60   | <i>Casuarina cunninghamiana</i> | River she-oak | Semi-mature | Good   | Fair      | Long | Low - LS               | Medium          | 128cm                  | PDI Act 2016 (Regulated Tree)   | 0.23    | 0.27    | 2.82           | 24.98         | 1.91           |
| 61   | <i>Casuarina cunninghamiana</i> | River she-oak | Mature      | Good   | Fair      | Long | Low - LS               | Medium          | 325cm                  | PDI Act 2016 (Significant Tree) | 0.65    | 1.10    | 7.84           | 193.10        | 3.44           |
| 62   | <i>Casuarina cunninghamiana</i> | River she-oak | Mature      | Good   | Fair      | Long | Low - LS               | Medium          | 140cm                  | PDI Act 2016 (Regulated Tree)   | 0.43    | 0.50    | 5.16           | 83.65         | 2.47           |
| 63   | <i>Casuarina cunninghamiana</i> | River she-oak | Mature      | Good   | Fair      | Long | Low - LS               | Medium          | 231cm                  | PDI Act 2016 (Regulated Tree)*  | 0.33    | 0.45    | 3.95           | 49.02         | 2.37           |
| 64   | <i>Casuarina cunninghamiana</i> | River she-oak | Mature      | Good   | Fair      | Long | Low - LS               | Medium          | 180cm                  | PDI Act 2016 (Regulated Tree)   | 0.44    | 0.55    | 5.33           | 89.25         | 2.57           |

\*Circumference sum is >2m but stem average does not meet 625mm

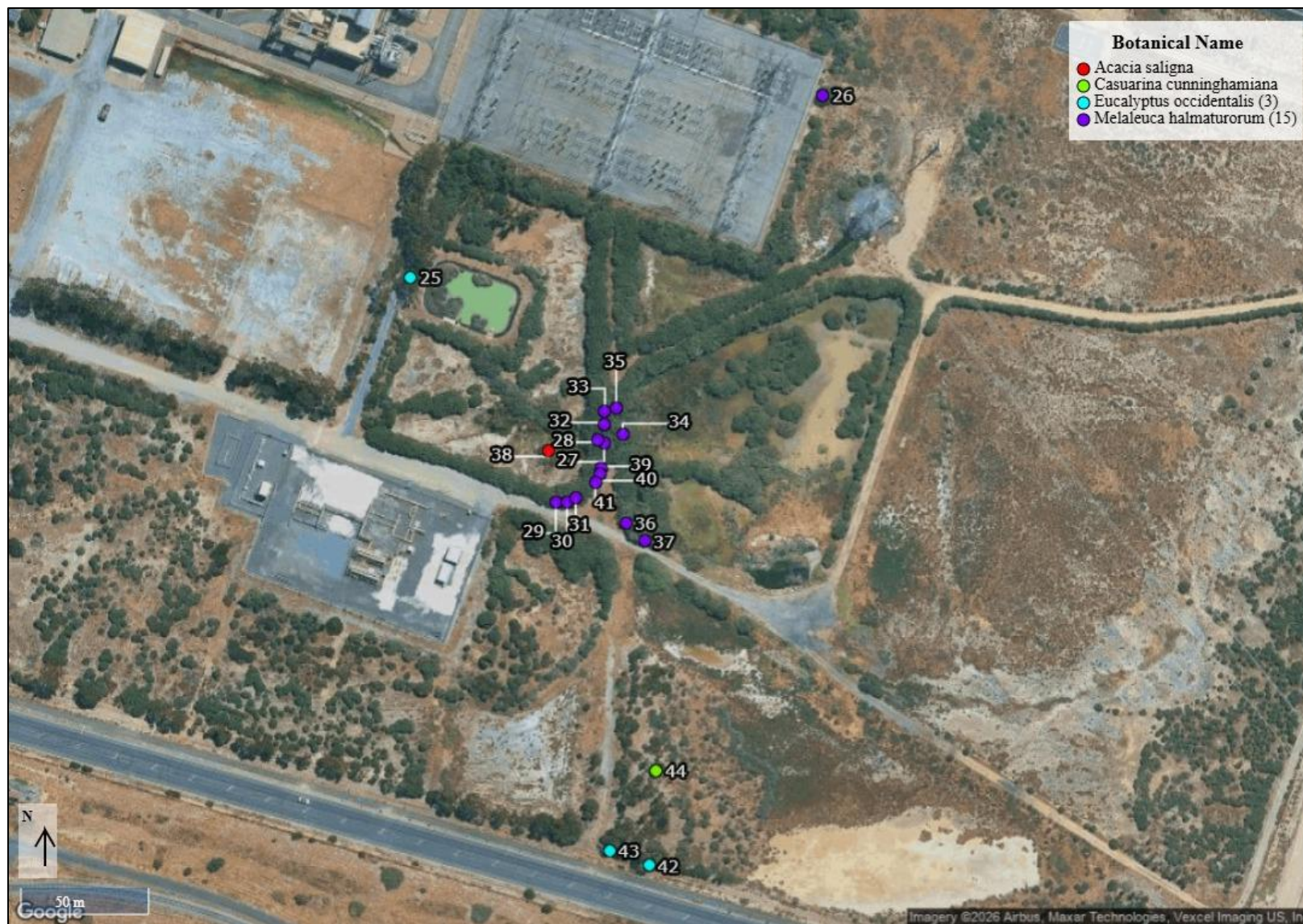


Figure 4: Tree Locations – Pelican Point Substation (Tree Plotter, 2026)



Figure 5: Tree Locations – LeFevre Substation (Tree Plotter, 2026)

### 3. Impact Assessment

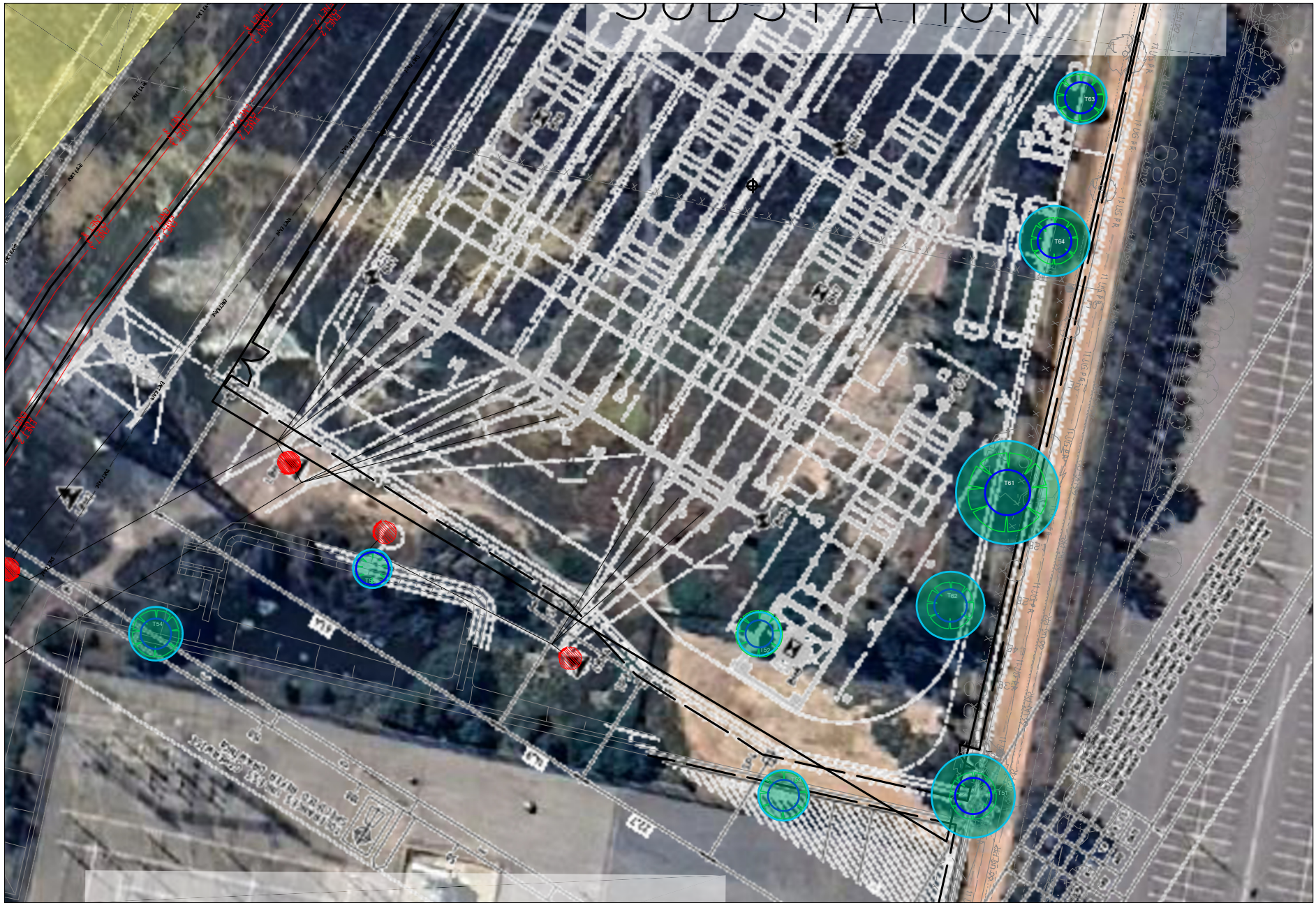
The proposed encroachments have been assessed against tree protection areas. This impact assessment is detailed in the table below and illustrated in the AIA mapping that follows.

| Tree | Botanical Name                 | Common Name                      | NRZ Radius (m) | NRZ Area (m <sup>2</sup> ) | SRZ Radius (m) | Proposed NRZ encroachment                                                    | SRZ Impacted? | Level of Impact | Proposed Outcome |
|------|--------------------------------|----------------------------------|----------------|----------------------------|----------------|------------------------------------------------------------------------------|---------------|-----------------|------------------|
| 25   | <i>Eucalyptus occidentalis</i> | Flat Topped Yate                 | 4.20           | 55.42                      | 2.47           | No proposed impact                                                           | No            | No impact       | Retain & protect |
| 26   | <i>Melaleuca halmaturorum</i>  | South Australian Swamp Paperbark | 4.20           | 55.42                      | 2.57           | PP Substation expansion – >20%                                               | Yes           | Major           | Remove & replace |
| 27   | <i>Melaleuca halmaturorum</i>  | South Australian Swamp Paperbark | 3.28           | 33.80                      | 2.13           | PP Substation expansion/sediment pond relocation, drainage and access – >20% | Yes           | Major           | Remove & replace |
| 28   | <i>Melaleuca halmaturorum</i>  | South Australian Swamp Paperbark | 3.06           | 29.42                      | 2.13           | PP Substation expansion/sediment pond relocation, drainage and access – >20% | Yes           | Major           | Remove & replace |
| 29   | <i>Melaleuca halmaturorum</i>  | South Australian Swamp Paperbark | 3.14           | 30.97                      | 2.76           | PP Substation expansion/sediment pond relocation, drainage and access – >20% | Yes           | Major           | Remove & replace |
| 30   | <i>Melaleuca halmaturorum</i>  | South Australian Swamp Paperbark | 3.05           | 29.22                      | 2.61           | PP Substation expansion/sediment pond relocation, drainage and access – >20% | Yes           | Major           | Remove & replace |
| 31   | <i>Melaleuca halmaturorum</i>  | South Australian Swamp Paperbark | 6.00           | 113.10                     | 2.85           | PP Substation expansion/sediment pond relocation, drainage and access – >20% | Yes           | Major           | Remove & replace |
| 32   | <i>Melaleuca halmaturorum</i>  | South Australian Swamp Paperbark | 2.87           | 25.88                      | 2.47           | PP Substation expansion/sediment pond relocation, drainage and access – >20% | Yes           | Major           | Remove & replace |
| 33   | <i>Melaleuca halmaturorum</i>  | South Australian Swamp Paperbark | 3.49           | 38.26                      | 2.76           | PP Substation expansion/sediment pond relocation, drainage and access – >20% | Yes           | Major           | Remove & replace |
| 34   | <i>Melaleuca halmaturorum</i>  | South Australian Swamp Paperbark | 5.59           | 98.17                      | 2.80           | PP Substation expansion/sediment pond relocation, drainage and access – >20% | Yes           | Major           | Remove & replace |
| 35   | <i>Melaleuca halmaturorum</i>  | South Australian Swamp Paperbark | 4.20           | 55.42                      | 2.13           | PP Substation expansion/sediment pond relocation, drainage and access – >20% | Yes           | Major           | Remove & replace |
| 36   | <i>Melaleuca halmaturorum</i>  | South Australian Swamp Paperbark | 3.13           | 30.78                      | 2.47           | PP Substation expansion/sediment pond relocation, drainage and access – >20% | Yes           | Major           | Remove & replace |
| 37   | <i>Melaleuca halmaturorum</i>  | South Australian Swamp Paperbark | 2.99           | 28.09                      | 2.10           | PP Substation expansion/sediment pond relocation, drainage and access – >20% | Yes           | Major           | Remove & replace |
| 38   | <i>Acacia saligna</i>          | Golden Wreath Wattle             | 4.20           | 55.42                      | 2.25           | PP Substation expansion/sediment pond relocation, drainage and access – >20% | Yes           | Major           | Remove & replace |

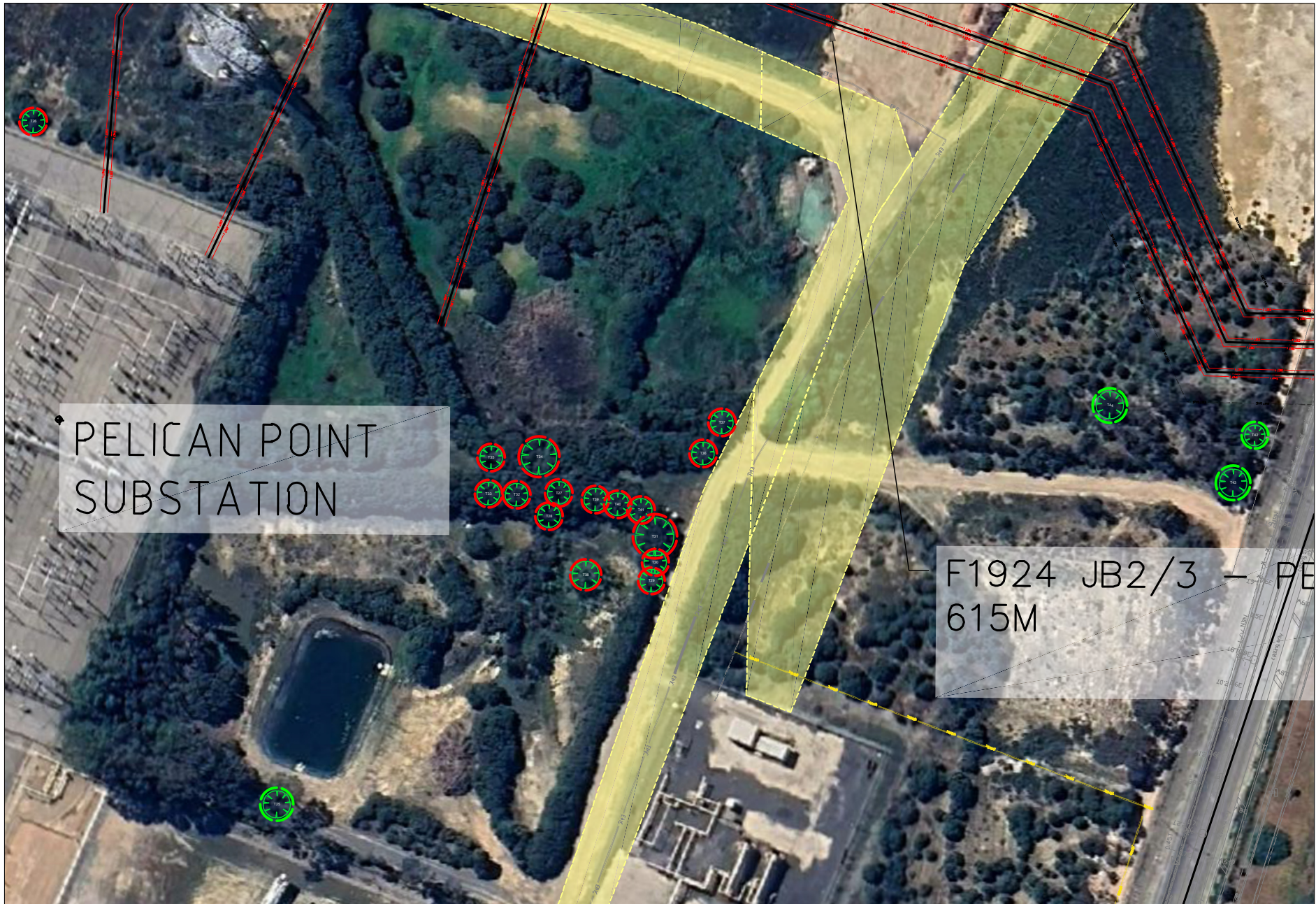
| Tree | Botanical Name                    | Common Name                      | NRZ Radius (m) | NRZ Area (m <sup>2</sup> ) | SRZ Radius (m) | Proposed NRZ encroachment                                                    | SRZ Impacted? | Level of Impact | Proposed Outcome |
|------|-----------------------------------|----------------------------------|----------------|----------------------------|----------------|------------------------------------------------------------------------------|---------------|-----------------|------------------|
| 39   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | 2.85           | 25.52                      | 2.67           | PP Substation expansion/sediment pond relocation, drainage and access – >20% | Yes           | Major           | Remove & replace |
| 40   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | 3.00           | 28.27                      | 2.47           | PP Substation expansion/sediment pond relocation, drainage and access – >20% | Yes           | Major           | Remove & replace |
| 41   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | 3.11           | 30.39                      | 2.25           | PP Substation expansion/sediment pond relocation, drainage and access – >20% | Yes           | Major           | Remove & replace |
| 42   | <i>Eucalyptus occidentalis</i>    | Flat Topped Yate                 | 3.48           | 38.05                      | 2.10           | No proposed impact                                                           | No            | No impact       | Retain & protect |
| 43   | <i>Eucalyptus occidentalis</i>    | Flat Topped Yate                 | 3.60           | 41.72                      | 2.37           | No proposed impact                                                           | No            | No impact       | Retain & protect |
| 44   | <i>Casuarina cunninghamiana</i>   | River she-oak                    | 3.83           | 46.08                      | 1.94           | No proposed impact                                                           | No            | No impact       | Retain & protect |
| 45   | <i>Casuarina cunninghamiana</i>   | River she-oak                    | 6.01           | 113.10                     | 2.93           | No proposed impact                                                           | No            | No impact       | Retain & protect |
| 46   | <i>Casuarina cunninghamiana</i>   | River she-oak                    | 5.46           | 93.66                      | 2.57           | No proposed impact                                                           | No            | No impact       | Retain & protect |
| 47   | <i>Eucalyptus microcarpa</i>      | Grey Box                         | 4.06           | 51.78                      | 2.34           | LeFevre East and 275kV line – >20%                                           | Yes           | Major           | Remove & replace |
| 48   | <i>Eucalyptus microcarpa</i>      | Grey Box                         | 4.01           | 50.52                      | 2.41           | LeFevre East and 275kV line – >20%                                           | Yes           | Major           | Remove & replace |
| 49   | <i>Callitris gracilis</i>         | Slender Cypress-Pine             | 3.12           | 30.58                      | 2.02           | Underground powerline – >20%                                                 | Yes           | Major           | Remove & replace |
| 50   | <i>Callitris gracilis</i>         | Slender Cypress-Pine             | 3.78           | 44.89                      | 2.15           | Underground powerline – >20%                                                 | No            | Major           | Remove & replace |
| 51   | <i>Allocasuarina verticillata</i> | Dropping She-oak                 | 6.33           | 125.88                     | 2.76           | LeFevre East Substation – >20%                                               | Yes           | Major           | Remove & replace |
| 52   | <i>Allocasuarina verticillata</i> | Dropping She-oak                 | 5.59           | 98.17                      | 2.08           | LeFevre East Substation – >20%                                               | Yes           | Major           | Remove & replace |
| 53   | <i>Allocasuarina verticillata</i> | Dropping She-oak                 | 3.84           | 46.32                      | 2.37           | LeFevre East Substation – >20%                                               | Yes           | Major           | Remove & replace |
| 54   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | 4.08           | 52.30                      | 2.32           | LeFevre East Substation – >20%                                               | Yes           | Major           | Remove & replace |
| 55   | <i>Melaleuca halmaturorum</i>     | South Australian Swamp Paperbark | 2.95           | 27.34                      | 2.49           | LeFevre East Substation – >20%                                               | Yes           | Major           | Remove & replace |
| 56   | <i>Casuarina cunninghamiana</i>   | River she-oak                    | 6.07           | 115.75                     | 2.76           | LeFevre East Substation – >20%                                               | Yes           | Major           | Remove & replace |
| 57   | <i>Casuarina cunninghamiana</i>   | River she-oak                    | 2.25           | 15.90                      | 1.85           | LeFevre East Substation – >20%                                               | Yes           | Major           | Remove & replace |
| 58   | <i>Casuarina cunninghamiana</i>   | River she-oak                    | 3.58           | 40.26                      | 2.13           | LeFevre East Substation – >20%                                               | Yes           | Major           | Remove & replace |
| 59   | <i>Casuarina cunninghamiana</i>   | River she-oak                    | 2.69           | 22.73                      | 2.25           | LeFevre East Substation – >20%                                               | Yes           | Major           | Remove & replace |
| 60   | <i>Casuarina cunninghamiana</i>   | River she-oak                    | 2.82           | 24.98                      | 1.91           | LeFevre East Substation – >20%                                               | Yes           | Major           | Remove & replace |
| 61   | <i>Allocasuarina verticillata</i> | Dropping She-oak                 | 7.84           | 193.10                     | 3.44           | LeFevre East Substation – >20%                                               | Yes           | Major           | Remove & replace |
| 62   | <i>Allocasuarina verticillata</i> | Dropping She-oak                 | 5.16           | 83.65                      | 2.47           | LeFevre East Substation – >20%                                               | Yes           | Major           | Remove & replace |

| Tree | Botanical Name                    | Common Name      | NRZ Radius (m) | NRZ Area (m²) | SRZ Radius (m) | Proposed NRZ encroachment      | SRZ Impacted? | Level of Impact | Proposed Outcome |
|------|-----------------------------------|------------------|----------------|---------------|----------------|--------------------------------|---------------|-----------------|------------------|
| 63   | <i>Allocasuarina verticillata</i> | Dropping She-oak | 3.95           | 49.02         | 2.37           | LeFevre East Substation – >20% | Yes           | Major           | Remove & replace |
| 64   | <i>Allocasuarina verticillata</i> | Dropping She-oak | 5.33           | 89.25         | 2.57           | LeFevre East Substation – >20% | Yes           | Major           | Remove & replace |







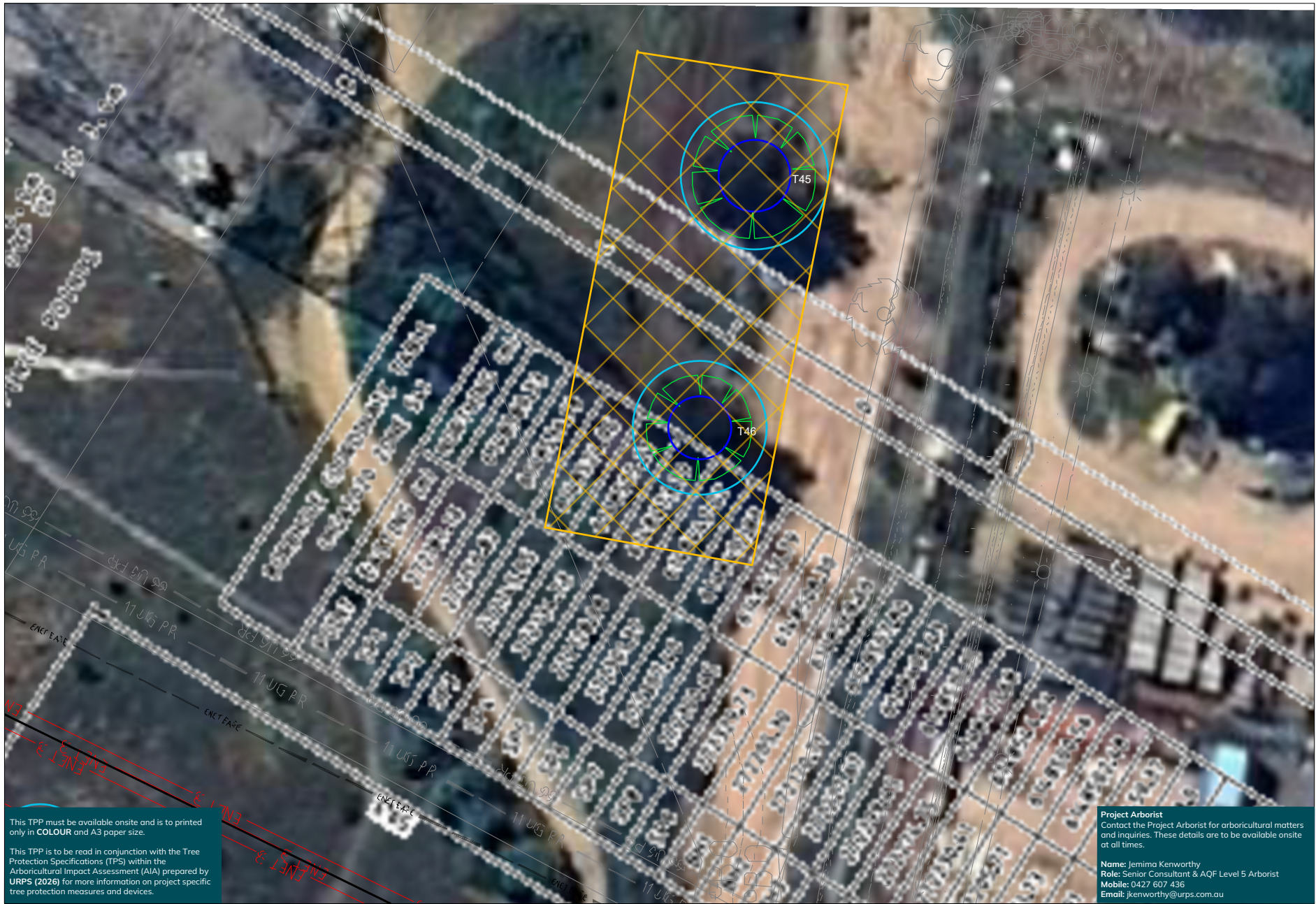


TREES PROPOSED TO BE RETAINED & REMOVED  
PELICAN POINT SUBSTATION

- PROPOSED FOR RETENTION
- PROPOSED FOR REMOVAL

NOT TO SCALE

DWG. REF - 3 02259 / 400-005  
REVISION - A  
URPS REF - 26ADL-1420  
DATE - 25/04/2026  
AUTHOR - JKENWORTHY



## 4. Discussion

### 4.1 Tree Assessment

A total of 40 trees were assessed within the Pelican Point substation and LeFevre Substation. Trees along the proposed 275kV cable line connecting the two substations were also assessed.

The tree population consists of *Melaleuca halmaturorum* – South Australian Swamp Paperbark, *Allocasuarina verticillata* – Drooping She-Oak and other indigenous/introduced native species.

A total of 33 trees have trunk circumferences that exceed 1m (when measured at 1m above natural ground level). These are classified as Regulated Trees under the *Planning Development and Infrastructure Act 2016*.

A further 6 trees have trunk circumferences that exceed 2m (when measured at 1m above natural ground level). These are classified as Significant Trees under the *Planning Development and Infrastructure Act 2016*.

One tree (Tree 42) has a trunk circumference <1m and is not controlled under the *Planning Development and Infrastructure Act 2016*. This tree was collected for comprehensiveness due to its proximity to the proposed 275kV line footprint.

Each of the 34 Regulated and Significant Trees proposed for removal have been assessed against the Performance Outcomes PO1.1 and PO 1.2 of the Regulated and Significant Tree Overlay. These trees are not considered Regulated or Significant Trees worthy of retention due to their location and characteristics. The full assessment can be found in Appendix B.

### 4.2 Impact Analysis

A total of 34 trees are subject to impacts from the proposed work (as per Section 3). This includes impacts from:

- The expansion of Pelican Point Substation (including new powerlines and relocation of the existing sediment pond)
- 275kV line connecting Pelican Point Substation and LeFevre Substation
- The expansion of LeFevre Substation (LeFevre East Substation)

Tree impacts are mapped in Section 3. The impacts on these 34 trees are “major” (>20% NRZ encroachment and/or SRZ impact). The retention of these trees is not compatible with the proposed work.

The impact assessment is high-level because detailed design (and construction methods) has not yet been finalised. The assessment, thus far, determines whether a tree is impacted or not and proposes retention/removal.

Detailed design will consider all reasonable and practicable design solutions to mitigate impacts on Regulated and Significant Trees within the context of site constraints, including the presence of underground gas pipelines.

This assessment will require updating once detailed design is complete.

The remaining 6 trees are not subject to any impact from the proposed work. These trees are to be retained and protected in accordance with Section 5.1.

## 5. Recommendations

### 5.1 Tree Retention and Protection

Trees 25, 42, 43, 44, 45 and 46 (6 trees) are recommended for retention. These trees are not subject to impacts from the proposed work.

A tree protection plan and tree protection specifications have been included to outline protection methods for these trees.

A suitably qualified Project Arborist is to be engaged to oversee arboricultural matters for the duration of the proposed work.

### 5.2 Tree Removal and Replacement

Trees 26-41 (16 trees) and 47-64 (18 trees) are recommended for removal.

These trees do not satisfy the tests in PO 1.1 and PO 1.2 of the Regulated and Significant Tree Overlay in the Planning & Design Code (see Appendix B). This means that they are not Regulated or Significant Trees worthy of retention and are therefore suitable for removal. Approval is required to remove these trees.

These trees are subject to impacts from the proposed work and/or have short useful life expectancy and moderate/low ecological value.

The trees recommended for removal will be replaced in accordance with the *Planning Development and Infrastructure Act 2016*. Replacement species should be selected to suit the overall landscaping plan for the site and be indigenous to the local area.

## 6. References

Dunster, Smiley, Matheny and Lilly 2017. 2<sup>nd</sup> Edition. *Tree Risk Assessment Manual*. International Society of Arboriculture, Champaign IL. USA.

IACA 2010. *IACA Significance of a Tree, Assessment Rating System (STARS)*, Institute of Australian Consulting Arboriculturists, [www.iaca.org.au](http://www.iaca.org.au).

Standards Australia. 2025. *AS4970-2025 Protection of trees on development sites*.

Succession Ecology. 2026. *Australian Naval Infrastructure Electra Net Regulated and Significant Tree Assessment*. Succession Ecology report ES0126-06 prepared for Australian Naval Infrastructure.

# Appendix A - Jemima Kenworthy CV

# Jemima Kenworthy

## Senior Consultant

Jemima understands the complex relationship between trees, design and development like few do.

Dual qualifications in arboriculture and environmental science arm Jemima with the right technical know-how when it comes to trees and planning. Working hard alongside our planners, designers and environmental specialists to strike the right balance when managing trees.

Jemima is as serious about the science of trees as she is about hitting deadlines. Providing expert information on visual, environmental and development impacts quickly to help influence early decisions about tree retention, pruning or removal/replacement. From straight-forward to complex arboriculture issues.

Personable, articulate and driven. Jemima will quickly become part of your trusted design team.

### Areas of Expertise

Data collection  
Arboricultural impact assessment  
Legislative tree assessment  
CAD design software  
Stakeholder management  
Legislative review and policy development  
Fauna habitat assessment  
Post-approval implementation  
Project management



### Qualifications

Bachelor of Environmental Management, University of New South Wales

Diploma of Arboriculture (AQF Level 5), TAFE SA

Tree Risk Assessment Qualification (TRAQ), International Society of Arboriculture (ISA)

### Accreditations / Affiliations

Arboriculture Australia (Registered Consulting Member)

TREENET (Member)

### Contact



## Appendix B – Planning and Design Code Assessment

### Assessment Approach for Regulated Tree and Significant Tree Removal

There is a three-step test to determining whether a tree is a Regulated or Significant Tree, and whether it should be retained:

1. Is the tree of a size that qualifies as a Regulated Tree or Significant Tree?
2. Is the tree a Regulated Tree or Significant Tree worthy of retention?
3. If the Regulated Tree or Significant Tree is worthy of retention under Test 2, are there other reasons it should be removed?

#### Test 1 – Is the tree of size?

The 34 trees proposed for removal in this application have trunk circumferences as per Section 2.

A total of **31 trees** (Trees 26 – 41, 47, 48, 49, 50, 52, 53, 54, 55, 57, 58, 59, 60, 62, 63 and 64) **proposed for removal** have trunk circumferences that exceed 1m (when measured at 1m above natural ground level). These are classified as Regulated Trees under the *Planning Development and Infrastructure Act 2016*.

A further **3 trees** (Trees 51, 56 and 61) **proposed for removal** have trunk circumferences that exceeds 2m (when measured at 1m above natural ground level). These are classified as Significant Trees under the *Planning Development and Infrastructure Act 2016*.

#### Test 2 – Is the tree worthy of retention?

##### Assessment approach

Performance Outcome 1.1 in the Regulated and Significant Tree Overlay in the Planning and Design Code states:

**PO 1.1** Regulated trees are retained where they:

- (a) make an important visual contribution to local character and amenity
- (b) are indigenous to the local area and listed under the National Parks and Wildlife Act 1972 as a rare or endangered native species and / or
- (c) provide an important habitat for native fauna. (underlining added)

**PO 1.2** Significant trees are retained where they:

- (a) make an important contribution to the character or amenity of the local area
- (b) are indigenous to the local area and are listed under the National Parks and Wildlife Act 1972 as a rare or endangered native species
- (c) represent an important habitat for native fauna
- (d) are part of a wildlife corridor of a remnant area of native vegetation
- (e) are important to the maintenance of biodiversity in the local environment  
and / or
- (f) form a notable visual element to the landscape of the local area. (underlining added)

There is relevant case law that informs the consideration of whether a Regulated or Significant Tree is worthy of retention.

In *Thomas v Unley CC* [2020] SAERDC 34, the ERD Court summarised the approach taken in *Summers v City of Unley* [2002] SAERDC 13. Accordingly, the Court's practice regarding assessment of applications for the removal of Significant Trees is (at [25]):

***The Court must first consider whether the attributes, or values of the tree merits its retention... (underlining added)***

In *Frayne v City of Burnside* [2010] SAERDC 28, the court summarised the Court's findings in *Summers*, and used them as a guide to the relevant approach to be adopted in resolving the "initial question" to be asked, as follows (at [22])

- The intended consequence of Principle 199 (50) cannot be that every tree, regardless of its "species, characteristics, [and] benefit provided contribution to amenity", be retained;
- This is so because Principle 199 (50) must be read in context of Objective 54 (20). When read in that context the Court concluded that only certain significant trees not be removed;
- The significant trees to be retained are, by reference to Objective 54 (20) and its explanatory text, those which confer on the local area important aesthetic or environmental benefits; and
- In turn, whether a tree makes an important aesthetic or environmental benefit is an issue resolved by reference to Principle 197 (44). (underlining added).

I apply this assessment approach to applications for removal of Regulated and Significant Trees for the purposes of Test 2.

#### ***Important visual contribution to local character and amenity (PO 1.1(a))***

In *Thomas* (previously referenced), the Court found that the locality of a tree should be defined broadly:

***"To include an area from where the tree can be considered in the context of the prevailing landscape" and not narrowly to encompass "simply the area from which it can be viewed". (underlining added)***

I consider the locality of the Regulated and Significant Trees to be defined on the plan overleaf based on where the trees can be viewed, where the proposed development will have impact and where existing nearby development has impact on the subject site.



In *Frayne*, the Court considered the level of contribution a significant tree is required to make to character and amenity of a locality before it will be protected. The court emphasised that (at [47]):

***for a significant tree to gain the protection envisaged in Objective 20 it is insufficient for it to be found on assessment under Principle 44(a) to make a contribution to the character or amenity of the locality. Instead, it must make an important contribution to the character of the locality or, by reference to Objective 20, confer on the local area important aesthetic or environmental benefits. (underlining added)***

In *Savoy Development Pty Ltd v Town of Gawler* [2013] SAERDC 32 (25 June 2013), the Court found that:

***for habitat to be raised to the level of 'important' (as sought by Objective 2(d)), it must be beyond that likely to be expected in any mature tree of indigenous origins – that is, it is beyond the normal level that might be expected or that it is so unique or special that it may be considered important. (underlining added)***

I consider that a similar interpretation of the word “important” should be used for the assessment of visual contribution to local character and amenity. That is, the visual contribution should be beyond the normal level to be unique or special.

### Pelican Point Substation

I consider that Trees 26–41 do not make an important contribution to the character and amenity of the local area because:

- The trees make very limited visual contribution to the streetscape and locality more broadly as they are short in stature, visually obstructed by fencing, infrastructure and adjacent vegetation.
- The trees cannot be seen from Pelican Point Road.
- These trees are located within a secure area that is not open to the public.
- The trees provide limited shade to the public and private realm.

### LeFevre Substation

I consider that Trees 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64 and 67 do not make an important contribution to the character and amenity of the local area because:

- The trees make limited visual contribution to the streetscape and locality more broadly as they are setback from Mersey Road North and are visually obstructed by adjacent infrastructure.
- The trees are situated off an unsealed road that has very low use.
- The trees provide limited shade to the public and private realm.

### *Indigenous to the local area and listed as a rare or endangered native species (PO 1.1(b))*

The tree species in question are outlined in the table below.

| Species                                              | Indigenous to the local area? | Listed as Rare or Endangered under the NPW Act 1972? | Satisfies criteria? |
|------------------------------------------------------|-------------------------------|------------------------------------------------------|---------------------|
| <i>Acacia saligna</i> – Golden Wreath Wattle         | No                            | No                                                   | No                  |
| <i>Allocasuarina verticillata</i> – Drooping She-oak | Yes*                          | No                                                   | No                  |
| <i>Casuarina cunninghamiana</i> – River She-oak      | No                            | No                                                   | No                  |
| <i>Eucalyptus microcarpa</i> – Grey Box              | Yes*                          | No                                                   | No                  |
| <i>Eucalyptus occidentalis</i> – Flat Topped Yate    | No                            | No                                                   | No                  |
| <i>Melaleuca halmaturorum</i> – SA Swamp Paperbark   | Yes*                          | No                                                   | No                  |
| <i>Callitris gracilis</i> – Slender Cypress-Pine     | Yes                           | No                                                   | No                  |

\*Indigenous to the state of South Australia but not to the local area

None of the assessed species are indigenous to the local area and listed as rare or endangered under the *National Parks and Wildlife Act 1972*.

### ***Important habitat for native fauna (PO 1.1(c))***

Following the guidance provided by *Savoy Development Pty Ltd v Town of Gawler* [2013] SAERDC 32 (25 June 2013) previously quoted, the trees proposed for removal do not provide “important habitat” for native fauna because there was no evidence of threatened fauna inhabitancy at the time of assessment.

In accordance with the Regulated and Significant Tree Report prepared by Succession Ecology (26 January 2026) the trees assessed attain moderate to low ecological values and are not considered “important”. The report states *“Many of the Swamp Paper-bark have been heavily trimmed to allow for construction access, which is unrelated to the proposed works. No hollows were observed but the trees still provide some habitat opportunities for some non-threatened fauna in a suburban landscape. The opportunistic fauna observed on site are common species that are expected in a suburban habitat”*. This further emphasises that the assessed trees would not contain habitat that is considered beyond the normal, unique or special.

The Succession Ecology report identified the trees along Mersey Road North as being of high ecological value. These trees will not be impacted by the proposed development.

### ***Part of a wildlife corridor of a remnant area of native vegetation (PO 1.2(d) Significant Trees only)***

The three Significant Trees proposed for removal (Trees 51, 56 and 61) are not situated within an area of remnant vegetation. Their surrounding environment is fragmented and has been historically disturbed.

These trees do not make up part of a wildlife corridor of a remnant area of native vegetation.

### ***Important to the maintenance of biodiversity in the local environment (PO 1.2(d) Significant Trees only)***

Trees 51, 56 and 61 are not important to the maintenance of biodiversity in the local environment because:

- The species are not uncommon or rare in the local area. This means the removal of these trees will not detrimentally impact local floral biodiversity.
- As per PO 1.1(c), the trees do not contain any important fauna habitat. This means the removal of these trees will not detrimentally impact fauna biodiversity.
- These trees are not connected to remnant vegetation wildlife corridors. This means their removal will not significantly fragment fauna movement.

### ***Form a notable visual element to the landscape of the local area (PO 1.2(e) Significant Trees only)***

In *Frayne v City of Burnside* [2010] SAERDC 28, the court concluded (at [49]):

***If a significant tree does not make an important contribution to the character and amenity of the local area, it is most likely not to be, in a positive sense, a notable element in its landscape.***

I have previously concluded in PO 1.1(a) that the trees in question do not make an important contribution to the character and amenity of the local area.

I also consider that the Significant Trees in question do not form a notable visual element to the landscape of the local area for similar reasons.

### **Conclusion**

The 31 Regulated Trees in question (Trees 26–41, 47, 48, 49, 50, 52, 53, 54, 55, 57, 58, 59, 60, 62, 63 and 64) do not satisfy the tests in PO 1.1 of the Regulated and Significant Tree Overlay in the Planning & Design Code. This means that they are not Regulated Trees worthy of retention and are therefore suitable for removal. Approval to remove these trees is required.

The 3 Significant Trees in question (Trees 51, 56 and 61) do not satisfy the tests in PO 1.2 of the Regulated and Significant Tree Overlay in the Planning & Design Code. This means that they are not Significant Trees worthy of retention and are therefore suitable for removal. Approval to remove these trees is required.

There is no need to proceed to Test 3 in this instance that would otherwise consider whether there is additional justification for tree removal.

## Appendix C - Tree Protection Plan (TPP)

In accordance with AS4970-2025 Protection of trees on development sites Section 2.2.6, the TPP including a scale and dimensions shall show:

- i. TPZs for trees being retained, considering the matters referred to in Section 3 of the standard, and*
- ii. The location of specified tree protection devices.*

A copy of the TPP (and accompanying TPS) shall form part of the development plans. Where the consent process modifies the proposed development or involves new work impacting the tree(s), the TPS and TPP shall be assessed by the Project Arborist and modified where necessary.

The location of the TPZs and the specified tree protection devices should also be shown on other documents such as demolition, bulk earthworks, construction and landscape plans.

The approved TPP and TPS shall be available onsite prior to the commencement and for the duration of the development works. Tree protection requirements should form part of the site induction process. Participants should be made aware of the prohibited activities for the TPZs.

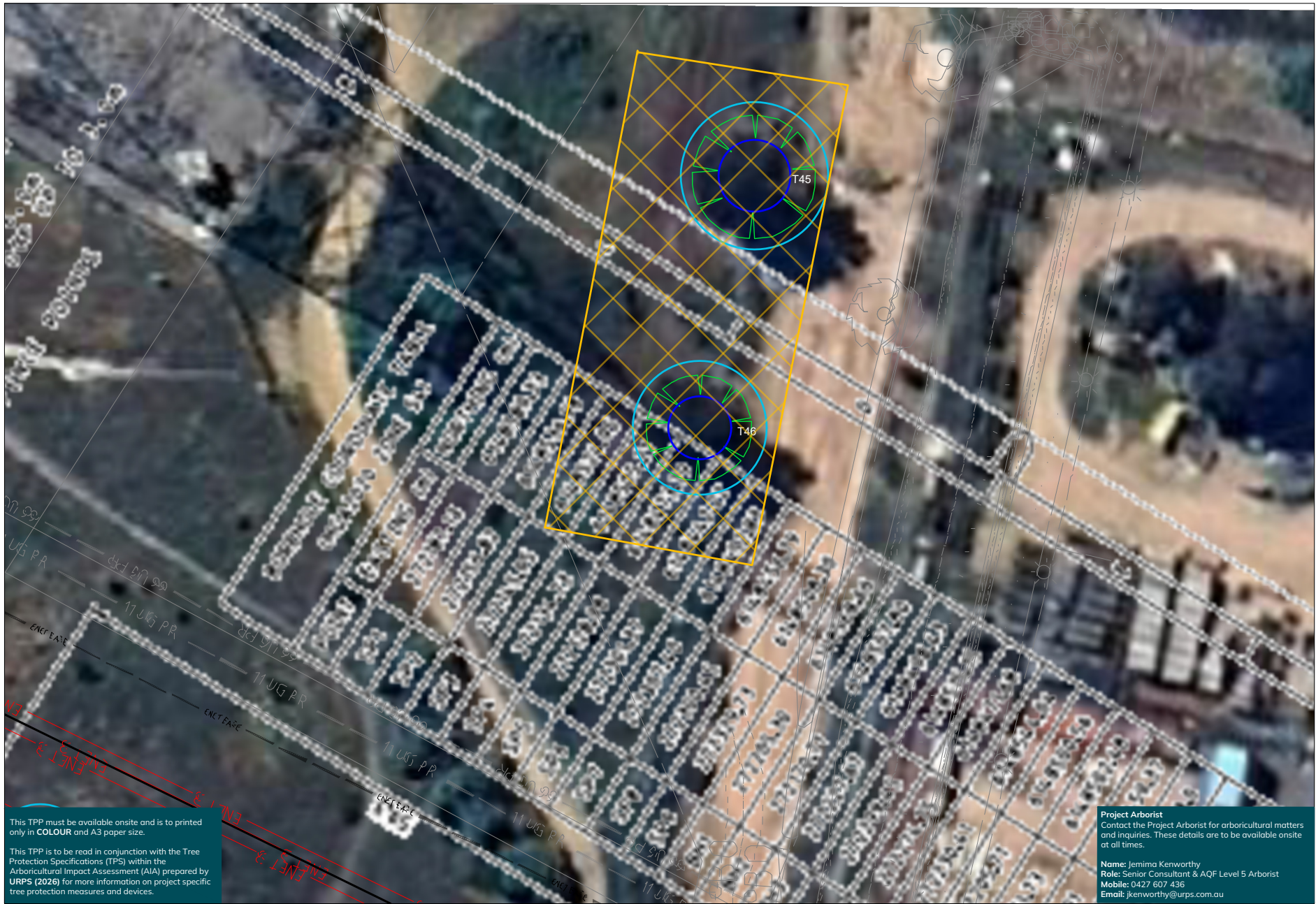


**TREE PROTECTION PLAN (TPP)**  
PELICAN POINT SUBSTATION

- TREE PROTECTION ZONE FENCING
- EXCLUSION ZONE (MARKED WITH HIGH-VISIBILITY BUNTING)
- NOTIONAL ROOT ZONE (NRZ)
- STRUCTURAL ROOT ZONE (SRZ)

NOT TO SCALE

DWG. REF - 3 02259 / 400-005  
REVISION - A  
URPS REF - 26ADL-1420  
DATE - 24/04/2026  
AUTHOR - J.KENWORTHY



# Appendix D - Tree Protection Specifications (TPS)

In accordance with AS4970-2025 Protection of trees on development sites Section 2.2.6, the TPS shall:

- i. Specify, using a logical and sequential process, the measures by which the trees will be protected and managed throughout development works.
- ii. State any prohibitions that may be required due to the lack of detail or documentation (e.g., no trenching Is allowed within the TPZ where a services plan does not exist); and
- iii. Document critical stages.

This Appendix details the project specific tree protection specifications required for each tree to be retained. These specifications are provided in order of recommended implementation for ease.

Table 1: Summary of tree protection measures and devices for the project

| Project Arborist | Tree Removal | Tree Management / Pruning | TPZ Fencing | TPZ Fence Signage | Ground protection | Trunk protection | Branch protection | Root protection | Site Amendments | Mulching | Irrigation | Ongoing Monitoring |
|------------------|--------------|---------------------------|-------------|-------------------|-------------------|------------------|-------------------|-----------------|-----------------|----------|------------|--------------------|
| ✓                | ✓            |                           | ✓           | ✓                 |                   |                  |                   |                 |                 |          |            | ✓                  |

## Project Arborist

Prior to commencement of works, a suitably qualified and experienced person shall be appointed as Project Arborist (PA). The PA will consult with the design and construction team in regard to any arboricultural matters. The PA will also be responsible for certification of arboricultural matters at completion of each stage of works.

In accordance with AS4970-2025, the project arborist will be a competent person with an Australian Qualification Framework Level 5 Diploma of Arboriculture or equivalent and be able to perform the tasks required under this AIA and the associated Standard.

The details of the appointed Project Arborist shall remain onsite for the duration of works, to be used when required. Details should also be written on TPZ Fencing signage, where applicable.

## Tree Removal

Approved tree removal shall be undertaken prior to the establishment of tree protection measures and demolition/construction works commencing.

## Non-destructive Excavation

Excavation within the NRZ of trees to be retained should be avoided wherever possible. Where required the works should be minor in nature and directed by the Project Arborist. Excavation within an NRZ should be done using pneumatic and hydraulic tools.

The Project Arborist should advise on roots to be retained and should monitor excavation within the NRZ. The following should be adhered to:

- Excavate the majority of soil within the NRZ manually using hand tools and hydro excavation down to the required depth.
- Use the lowest pressure possible to excavate while avoiding stripping bark on roots. This requires caution from the operator.
- Tree root damage should be avoided wherever possible. Smaller tree roots (<20mm in diameter) are usually damaged by the process of hydro-excavation. Tree roots greater than 30mm in diameter shall be left undamaged and intact unless directed otherwise by the Project Arborist onsite.
- Any root damage/pruning is to be done in consultation with the Project Arborist.
- Any trenches made are to be backfilled with natural soil as quickly as possible to avoid roots drying out. If this is not possible, roots are to be kept moist (covering in wet hessian or hand irrigation) until the area can be backfilled.

## Tree Protection Zones (TPZ)

A tree protection zone (TPZ) is a restricted zone, usually delineated by protective fences (or using an existing structure such as a fence or wall) or other physical protection methods. The NRZ is the calculated protection radius, whereas the TPZ is the practical protection area accounting for site constraints. The management of the TPZ shall commence prior to site establishment and continue until completion of works.

Fences should be erected prior to machinery and materials entering site and before the commencement of work. Once erected, TPZ fencing will remain for the duration of works. Fencing shall not be removed without approval by the Project Arborist.

A TPZ fence is usually comprised of temporary fencing panels made of chain wire and held with concrete feet. Alternatively, plywood or wooden paling fence panels may be used. This fencing prevents building materials and soil from entering the TPZ. Mulch installation across the area of the TPZ surface is recommended.

There is to be no excavation, construction activity grade changes, surface treatments or storage of materials of any kind within the TPZ. The following activities are excluded from entering the TPZ:

- Excavation, cultivation or disturbance of the soil, including scraping of the surface.
- Equipment and material storage.
- Preparation of chemicals, including preparation of cement products.
- Movement or parking of vehicles and plant.
- Dumping of waste.
- Spreading or stockpiling of fill.
- Refuelling.
- Washing down and cleaning of equipment or hard surfaces.
- Fires.
- Physical damage to trees.

Activities specified above may be permitted with appropriate protection measures by the Project Arborist.

All visible faces/panels of the TPZ fences shall have signs identifying the area as an exclusionary Tree Protection Zone. These signs are to be visible from the development site. An example of an appropriate TPZ sign is provided below.

**Important – before any changes to the TPZ occur and new encroachments occur; the Project Arborist is to review the proposed encroachment and confirm whether it is acceptable. A relevant authority may also have to approve the encroachment if it exceeds thresholds for approval.**

### **Mulching**

The use of mulch is an important component of successfully protecting and retaining trees on development sites (Green and Young 1995). Mulch should be implemented within the TPZ of each tree to be retained. This should be as follows:

- Mulch should be aged and organic in origin. Mulch shall contain a mixture of coarse and fine particulates.
- Leaf mulch is ideal for placement in the NRZ of trees to be retained. Materials such as pine bark should be avoided.
- Mulch should be applied 75 – 100mm thickness in the NRZ of each tree (out to the drip line).
- Mulch should not meet the trunk of the tree.
- Mulch should be re-applied every 12 months, as required.

### **Irrigation**

An irrigation drip system should be established for trees to be retained during demolition and construction. This can consist of a drip system around each tree.

Irrigation should occur frequently during hot and dry periods (thoroughly 1x per week) and less frequently in cooler periods (thoroughly 1x per month) or periods of excess rain.

### Landscaping within the NRZ

Landscaping can cause inadvertent damage to established trees. This can be detrimental to tree health when compiled with impacts from construction activities. Damage to trees from landscaping activities includes:

- Soil changes (compaction, excavation, contamination)
- Physical tree damage (mechanical damage to trunks, branches)
- Root damage (cut/fill, trenching, paving, planting and lawn installation)

The following is to be adhered to for all landscaping works within the NRZs of trees to be retained.

- **Landscape Plans** - the Landscape Plans should be reviewed by the Project Arborist prior to finalisation. This will ensure consistency with TPPs and associated reporting. Landscape Contractors are to be provided with the TPP/TPS as part of this report.
- **Mulching** - landscaped areas are to be mulched (around mature trees) to improve growing environments. This mulch should be installed as per the Mulching specifications within this TPS. Mulch is to be maintained and topped up where required.
- **Irrigation** - irrigation is to be implemented around mature trees/landscaped areas as per the specifications in this TPS.
- **Paving** - paving within an NRZ is to be minimal and approved by the Project Arborist. If paving is required within the NRZ is to be permeable in nature and installed above existing grade.
- **Chemical use** - The use of chemicals (i.e., herbicides) is to be avoided where possible. If required, this is to be used with caution in accordance with the manufacture specifications.
- **Fencing** – fencing within an NRZ can be detrimental to tree health and structure where the use of inappropriate fencing systems can cause disruption to soil and damage tree roots. Fencing within an NRZ (where deemed necessary) should consist of lightweight fencing panels secured with spaced posts in concrete footings. Continuous concrete strip footings are not to be used. Grade changes must be avoided within the NRZ.
- **Retaining walls** – retaining walls are not to be installed within the NRZ of trees to be retained without Project Arborist approval in the form of an Arboricultural Impact Assessment (AIA) and associated TPP.

Planting around established trees must be undertaken with care. The following should be considered:

- Selecting species that contribute to the local diversity of the area is crucial for urban environments. Utilising a mix of locally indigenous species (for biodiversity and habitat) and deciduous exotic trees (for aesthetic reasons) provides positive benefits for local fauna.

- It is important to consider the future size of the selected species. Plant species in suitable locations for their projected size (height and spread) to allow them to thrive in their positions. Also consider whether the selected locations provide ample light and nutrients.
- Soil disturbance and grade changes around mature trees are to be minimised as far as practicable. Hand tools are to be used within the NRZ of established trees.
- Avoid planting monocultures (all one species). Monocultures are generally more susceptible to pest of disease.
- Plants should be well-spaced to allow them to reach mature size without restriction.
- The use of competitive plants should be avoided.
- Provide sufficient open earth (permeable) area for plantings.

### **Ongoing Monitoring**

Monitoring is to be undertaken by a suitably experienced AQF Level 5 Arborist to report on tree condition. This is to be undertaken at the stages specified in Table 2. The attending arborist will provide written reports and photographic evidence (dated) after each inspection. The arborist will notify the owner of changes in tree condition and any further protection measures to be implemented (if required).

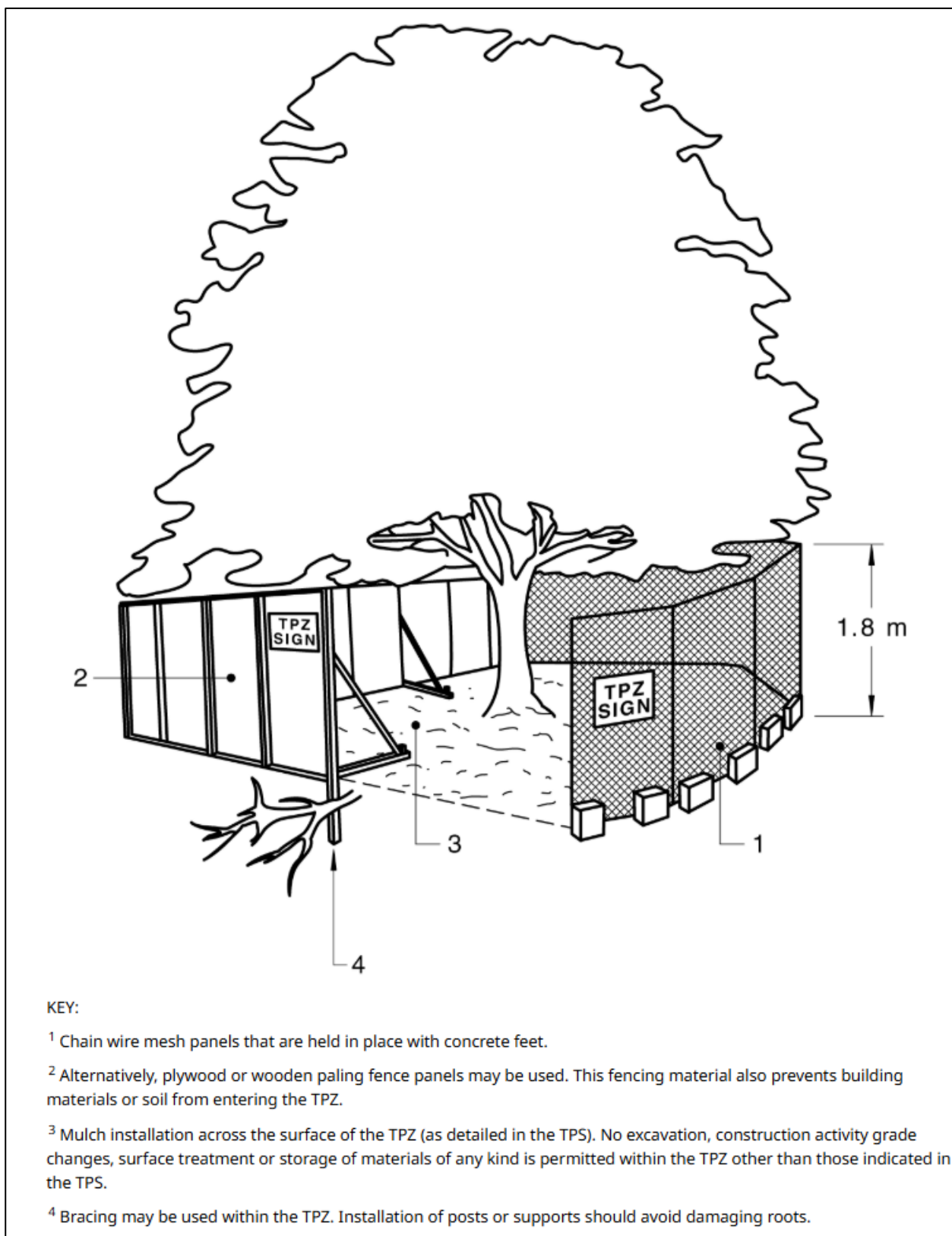


Figure 6: Example of TPZ fencing (AS4970-2025 Protection of trees on development sites)

# TREE PROTECTION ZONE



## NO ACCESS

### Activities excluded from the TPZ include -

- a. Excavation or disturbance of the soil, including scraping of the surface
- b. Spreading or stockpiling of fill
- c. Cultivation
- d. Equipment and material storage
- e. Preparation of chemicals, including preparation of cement products
- f. Parking of vehicles and plant
- g. Refuelling
- h. Dumping of waste
- i. Wash down and cleaning of equipment
- j. Fires
- k. Physical damage to the tree

### Project Arborist:

Jemima Kenworthy  
0427 607 436 [jkenworthy@urps.com.au](mailto:jkenworthy@urps.com.au)

Contact Jemima for a copy of the Tree Protection Specifications (TPS)



## Development Monitoring and Certification

The TPS shall Identify key stages where monitoring and certification by the [Project Arborist](#) are required. This is per *AS4970-2025 Protection of trees on development sites* Section 5.2.

**Table 2: Indicative stages in development and tree protection process (AS4970-2025)**

| Development stage                 | Tree protection process                                                                                                                                                     |                                                                                                                                                                                                                                 |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   | Matters for consideration                                                                                                                                                   | Actions and certifications                                                                                                                                                                                                      |
| <b>Planning</b>                   |                                                                                                                                                                             |                                                                                                                                                                                                                                 |
| Site acquisition                  | Legal constraints                                                                                                                                                           |                                                                                                                                                                                                                                 |
| Detail surveys                    | Council plans and policies<br>Planning instruments and controls<br>Heritage<br>Threatened species                                                                           | Existing trees are accurately plotted on the survey plan, including trees on adjoining land if the proposed works could take place in their NRZ.                                                                                |
| Preliminary tree assessment (PTA) | Hazards/risks<br>Tree retention value                                                                                                                                       | <a href="#">Evaluate all trees on the site</a><br>Verify that the survey represents the trees present onsite<br><a href="#">Provide preliminary arboriculture report, NRZs and retention values to guide development layout</a> |
| Preliminary development design    | Condition of trees<br>Proximity to buildings<br>Location of services<br>Roads<br>Level changes<br>Building operations space<br>Long term management                         | Planning selection of trees for retention<br>Design review by proponent<br>Design modifications to minimise impacts on trees                                                                                                    |
| Development submission            | Identify trees for retention through comprehensive arboricultural impact assessment (AIA) of proposed development<br>Determine tree protection measures<br>Landscape design | <a href="#">Provide arboricultural impact assessment (AIA), including TPS and TPP, unless not required by relevant authority at this stage</a>                                                                                  |
| Development approval              | Development controls<br>Conditions of consent                                                                                                                               | Review consent conditions relating to trees, including updating TPS and TPP                                                                                                                                                     |

| Development stage                        | Tree protection process                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                          |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                          | Matters for consideration                                                                                                                                                                                          | Actions and certifications                                                                                                                                                                                                                                                               |
| Pre-site works                           |                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                          |
| Review of approval (development details) | Identify changes to works or additional works and details provided that may impact trees to be retained                                                                                                            | <a href="#">Review impact and update TPS and TPP</a>                                                                                                                                                                                                                                     |
| Initial site preparation                 | State-based Work Health and Safety requirements for tree work<br>Approved retention and removal<br>Refer to AS4373 for requirements on the pruning of amenity trees<br>Specifications for tree protection measures | Compliance with conditions of consent<br>Tree removal/tree retention/tree transplanting/tree pruning<br><a href="#">Certification of tree removal and pruning</a><br>Establish/delineate TPZ<br>Install protection measures<br><a href="#">Certification of tree protection measures</a> |
| Site works                               |                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                          |
| Site establishment                       | Temporary infrastructure<br>Demolition, bulk earthworks, hydrology                                                                                                                                                 | Locate temporary infrastructure to minimise impact on retained trees<br>Maintain protective measures<br><a href="#">Certification of tree protection measures</a>                                                                                                                        |
| Construction work                        | Liaison with site manager<br>Conformance with TPS, TPP and relevant conditions of consent<br>Deviation from approved documentation                                                                                 | Maintain or amend protective measures<br><a href="#">Supervision and monitoring</a>                                                                                                                                                                                                      |
| Implement hard and soft landscape works  | Installation of irrigation services<br>Control of compaction work<br>Installation of pavement and retaining walls                                                                                                  | Remove selected protective measures as necessary<br>Remedial tree works (if required)<br><a href="#">Supervision and monitoring</a>                                                                                                                                                      |
| Practical completion                     | Tree health and structure                                                                                                                                                                                          | Remove all remaining tree protection measures<br><a href="#">Certification of tree protection and condition</a>                                                                                                                                                                          |
| Post-development                         |                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                          |
| Defects liability/maintenance period     | Tree health and structure                                                                                                                                                                                          | Maintenance and monitoring<br>Final remedial tree works<br><a href="#">Final certification of tree condition</a>                                                                                                                                                                         |

## Appendix E - Assumptions and Limitations

- **Report scope** – this assessment relates only to trees assessed within the defined project area. No other vegetation or off-site trees was assessed unless specifically stated.
- **Site access and visibility** – a Level 2 assessment of trees was undertaken, with all observations made from ground level. Tree crown, internal cavities, and upper crown structures were assessed visually without climbing or invasive investigation (a Level 3 assessment). Dense understory, fencing, or site constraints may limit full visibility.
- **Tree condition at time of inspection** – the assessment represents the condition of the trees at the time of inspection only. Trees are living organisms subject to change through natural processes, weather events, pests, disease, or human activities.
- **No diagnostic testing** – Unless otherwise stated, no advanced diagnostic testing (e.g., decay detection tools, soil analysis, root mapping) was undertaken. Conclusions are based on visual tree assessment (VTA) principles.
- **Survey data** – Tree locations, dimensions, and property boundaries are assumed to be accurate as provided by the client, surveyor, or development plans. Where measuring from plans or approximations was required, minor variance is possible.
- **Design information** – this assessment relies upon the accuracy and completeness of the development plans and service layouts provided at the time of reporting. Subsequent design changes may alter impacts and require reassessment.
- **Underground services** – the presence, extent, and depth of underground services, structural roots, or soil constraints are assumed based on visible evidence, plans supplied, and typical species behaviour. No excavation or root-zone exploration was performed unless noted.
- **Application of AS4970-2025** – encroachment calculations, NRZ/SRZ determinations and protection measures are applied in accordance with *AS 4970-2025 Protection of trees on development sites*. The standard allows for arborist judgement where site circumstances differ from typical conditions.
- **Future tree performance** – predictions regarding tree response to construction impacts are based on industry knowledge and typical species behaviour; however, no arborist can guarantee the long-term survival or stability of trees due to variables outside professional control.
- **Weather and environmental conditions** – environmental factors (wind, soil moisture, drought, heat stress) existing before or after the inspection may influence tree condition in ways not observable at the time.
- **Liability for unauthorised works** – this assessment does not cover any tree damage, pruning, excavation, or construction activity that occurs without arborist oversight or outside the recommendations of this report.

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